

## **Dry Powder Injector**

### **Abstract**

Methods, processes, and apparatuses for the large scale synthesis of carbon nanostructures are provided. Metal catalysts having small diameter and narrow distribution of particle sizes are prepared and continuously injected as aerosols into a reactor. The metal catalysts are supported on supports that are substantially free of carbon. The metal catalyst, in the form of a powder, is placed in an injector that is shaken vertically. The powder is aerosolized, and the powder entrained in the gas is passed through a conduit that is bifurcated where one portion delivers the powder to the reactor while the other portion connects back to the ejector that is located in between the gas source and the top part of the container.

23085/08287/DOCS/1395505.1